## **CLAIMS**

- 1. An isolated polynucleotide comprising a sequence selected from the group consisting of:
- (a) a sequence provided in SEQ ID NOs:1931, 1938, 1941 and 1974-2002;
- (b) complement of the sequence provided in SEQ ID NOs:1931, 1938, 1941 and 1974-2002;
- (c) sequences consisting of at least 20 contiguous residues of a sequence provided in SEQ ID NOs:1931, 1938, 1941 and 1974-2002;
- (d) sequences that hybridize to a sequence provided in SEQ ID NOs:1931, 1938, 1941 and 1974-2002, under highly stringent conditions;
- (e) sequences having at least 75% identity to a sequence of SEQ ID NOs:1931, 1938, 1941 and 1974-2002;
- (f) sequences having at least 90% identity to a sequence of SEQ ID NOs:1931, 1938, 1941 and 1974-2002; and
- (g) degenerate variants of a sequence provided in SEQ ID NOs:1931, 1938, 1941 and 1974-2002.
- 2. An isolated polypeptide comprising an amino acid sequence selected from the group consisting of:
  - (a) SEQ ID NOs:1927-1930, 1932, 1934, 1937, 1940 and 1942-1973;
- (b) sequences having at least 70% identity to the amino acid sequence as provided in SEQ ID NOs:1927-1930, 1932, 1934, 1937, 1940 and 1942-1973;
- (c) sequences having at least 90% identity to the amino acid sequence as provided in SEQ ID NOs:1927-1930, 1932, 1934, 1937, 1940 and 1942-1973;
  - (d) sequences encoded by a polynucleotide of claim 1;

- (e) sequences having at least 70% identity to a sequence encoded by a polynucleotide of claim 1; and
- (f) sequences having at least 90% identity to a sequence encoded by a polynucleotide of claim 1.
- 3. An expression vector comprising a polynucleotide of claim 1 or a polynucleotide which encodes a polypeptide of claim 2 operably linked to an expression control sequence.
- 4. A host cell transformed or transfected with an expression vector according to claim 3.
- 5. An isolated antibody, or antigen-binding fragment thereof, that specifically binds to a polypeptide selected from the group consisting:
  - (a) a polypeptide according to claim 2; and
- (b) a polypeptide having an amino acid sequence that is encoded by a polynucleotide sequence provided in SEQ ID NOs:1948-1951, 1959, 1962-1968 and 1971 or a complement thereof.
- 6. An isolated antibody or antigent-binding fragment thereof according to claim 5, wherein the polypeptide is provided in SEQ ID NOs:1927-1929 and 1942-1973.
- 7. A method for detecting the presence of a cancer in a patient, comprising the steps of:
  - (a) obtaining a biological sample from the patient;
- (b) contacting the biological sample with a binding agent that binds to a polypeptide selected from the group consisting of:
  - (i) a polypeptide of claim 2,

- (ii) a polypeptide having an amino acid sequence provided in SEQ ID NO:1934,
- (iii) a polypeptide having at least 90% identity to an amino acid sequence provided in SEQ ID NO:1934,
- (iv) a polypeptide having at least 95% identity to an amino acid sequence provided in SEQ ID NOs:1934,
- (v) a polypeptide encoded by a polynucleotide provided in SEQ ID NO:1933, and
- (vi) a polypeptide encoded by a polynucleotide having at least 90% identity to a sequence provided in SEQ ID NO:1933;
- (c) detecting in the sample an amount of polypeptide that binds to the binding agent; and
- (d) comparing the amount of polypeptide to a predetermined cut-off value and therefrom determining the presence of a cancer in the patient.
- 8. A fusion protein comprising at least one polypeptide selected from the group consisting of:
  - (i) a polypeptide of claim 2,
- (ii) a polypeptide having an amino acid sequence provided in SEQ ID NO:1934,
- (iii) a polypeptide having at least 90% identity to an amino acid sequence provided in SEQ ID NO:1934,
- (iv) a polypeptide having at least 95% identity to an amino acid sequence provided in SEQ ID NO:1934,
- (v) a polypeptide encoded by a polynucleotide provided in SEQ ID NO:1933, and
- (vi) a polypeptide encoded by a polynucleotide having at least 90% identity to a sequence provided in SEQ ID NO:1933.

- 9. A fusion protein according to claim 8, wherein the at least one polypeptide is provided in:
  - (a) SEQ ID NOs:1937 and 1940; and
- (b) a polypeptide encoded by a polynucleotide provided in SEQ ID NOs:1938 and 1941.
- 10. An oligonucleotide that hybridizes to at least one sequence selected from the group consisting of:
  - (a) a sequence set forth in claim 1; and
  - (b) a sequence provided in SEQ ID NO:1933,

under highly stringent conditions.

- 11. A method for stimulating and/or expanding T cells specific for a tumor protein, comprising contacting T cells with at least one component selected from the group consisting of:
  - (a) polypeptides according to claim 2;
- (b) a polypeptide having an amino acid sequence provided in SEQ ID NO:1934;
- (c) a polypeptide having an amino acid sequence at least 90% identity to SEQ ID NO:1934;
- (d) a polypeptide having an amino acid sequence at least 95% identity to SEQ ID NO:1934;
  - (e) a polynucleotide according to claim 1;

- (f) a polynucleotide which encodes a polypeptide having an amino acid sequence as provided in (b), (c) or (d);
  - (g) a polynucleotide having a sequence provided in SEQ ID NO:1933;
  - (h) complement of the sequence provided in SEQ ID NO:1933;
- (i) sequences that hybridize to a sequence provided in SEQ ID NO:1933, under highly stringent conditions;
- (j) sequences having at least 90% identity to a sequence of SEQ ID NO:1933;
- (k) sequences having at least 95% identity to a sequence of SEQ ID NO:1933;
  - (l) degenerate variants of a sequence provided in SEQ ID NO:1933; and
- (m) antigen-presenting cells that express a polypeptide according to (a), (b), (c) or (d),

under conditions and for a time sufficient to permit the stimulation and/or expansion of T cells.

- 12. An isolated T cell population, comprising T cells prepared according to the method of claim 11.
- 13. A composition comprising a first component selected from the group consisting of physiologically acceptable carriers and immunostimulants, and a second component selected from the group consisting of:
  - (a) polypeptides according to claim 2;
- (b) a polypeptide having an amino acid sequence provided in SEQ ID NO:1934;
- (c) a polypeptide having an amino acid sequence with at least 90% identity to SEQ ID NO:1934;
- (d) a polypeptide having an amino acid sequence with at least 95% identity to SEQ ID NO:1934;

- (e) a polynucleotide according to claim 1;
- (f) a polynucleotide which encodes a polypeptide having an amino acid sequence as provided in (b), (c) or (d);
  - (g) a polynucleotide having a sequence provided in SEQ ID NO:1933;
  - (h) complement of the sequence provided in SEQ ID NO:1933;
- (i) sequences that hybridize to a sequence provided in SEQ ID NO:1933, under highly stringent conditions;
- (j) sequences having at least 90% identity to a sequence of SEQ ID NO:1933;
- (k) sequences having at least 95% identity to a sequence of SEQ ID NO:1933;
  - (l) degenerate variants of a sequence provided in SEQ ID NO:1933;
  - (m) antibodies according to claim 5;
  - (n) fusion proteins according to claim 8;
  - (o) T cell populations according to claim 12; and
- (p) antigen presenting cells that express a polypeptide according to (a),(b), (c) or (d).
- 14. A method for stimulating an immune response in a patient, comprising administering to the patient a composition of claim 13.
- 15. A method for the treatment of a lung cancer in a patient, comprising administering to the patient a composition of claim 13.
- 16. A method for determining the presence of a cancer in a patient, comprising the steps of:
  - (a) obtaining a biological sample from the patient;
- (b) contacting the biological sample with an oligonucleotide according to claim 10;

- (c) detecting in the sample an amount of a polynucleotide that hybridizes to the oligonucleotide; and
- (d) compare the amount of polynucleotide that hybridizes to the oligonucleotide to a predetermined cut-off value, and therefrom determining the presence of the cancer in the patient.
- 17. A diagnostic kit comprising at least one oligonucleotide according to claim 10.
- 18. A diagnostic kit comprising at least one antibody according to claim 5 and a detection reagent, wherein the detection reagent comprises a reporter group.
- 19. A method for inhibiting the development of a lung cancer in a patient, comprising the steps of:
- (a) incubating CD4+ and/or CD8+ T cells isolated from a patient with at least one component selected from the group consisting of:
  - (i) polypeptides according to claim 2;
- (ii) a polypeptide having an amino acid sequence provided in SEQ ID NO:1934,
- (iii) a polypeptide having an amino acid sequence with at least 90% identity to SEQ ID NO:1934,
- (iv) a polypeptide having an amino acid sequence with at least 95% identity to SEQ ID NO:1934,
  - (v) polynucleotides according to claim 1,
- (vi) a polynucleotide which encodes a polypeptide having an amino acid sequence as provided in (i), (ii), (iii) or (iv),
- (vii) a polynucleotide having a sequence provided in SEQ ID NO:1933,
  - (viii) complement of the sequence provided in SEQ ID NO:1933,

- (ix) sequences that hybridize to a sequence provided in SEQ ID NO:1933, under highly stringent conditions,
- (x) sequences having at least 90% identity to a sequence of SEQ ID NO:1933,
- (xi) sequences having at least 95% identity to a sequence of SEQ ID NO:1933,
- (xii) degenerate variants of a sequence provided in SEQ ID NO:1933, and
- (xiii) antigen presenting cells that express a polypeptide according to (i), (ii), (iii) or (iv),

such that T cells proliferate;

(b) administering to the patient an effective amount of the proliferated T cells; and thereby inhibiting the development of a cancer in the patient.